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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

ALPHA & OMEGA SEMICONDUCTOR,  
INC., a California corporation; and  
ALPHA & OMEGA SEMICONDUCTOR,  
LTD., a Bermuda corporation,

Plaintiffs,

v.

FAIRCHILD SEMICONDUCTOR  
CORP., a Delaware corporation,

Defendant.

AND RELATED COUNTERCLAIMS

Case No. 07-2638 JSW (EDL)  
(Consolidated with Case No. 07-2664 JSW)

**PLAINTIFF AOS'S REPLY IN SUPPORT  
OF ITS MOTION TO COMPEL  
RESPONSES TO INTERROGATORIES  
AND PRODUCTION OF DOCUMENTS**

Date: December 18, 2007  
Time: 9:00 a.m.  
Ctroom: Courtroom E, 15th Floor  
Judge: Hon. Elizabeth D. Laporte

## I. INTRODUCTION

Fairchild continues to improperly and unreasonably limit discovery to the eight specific Fairchild products that AOS identified as representative samples of accused products in its Patent L.R. 3-1 Preliminary Infringement Contentions (“PICs”). Fairchild concedes, as it must, that AOS is entitled to discovery on the Fairchild products that arguably incorporate features of the three patents asserted by AOS. *See* Fairchild Semiconductor Corporation’s Opposition To Plaintiff’s Motion To Compel Responses To Interrogatories and Production of Documents (“Def.’s Opp.”), Docket #112, at 1. Nevertheless, AOS has served numerous discovery requests on Fairchild in what has so far been a vain attempt to get information on these products, which AOS has defined in its requests as “Accused Fairchild Devices.” *Before* filing this motion, AOS attempted to limit the scope of discovery by narrowing the definition of Accused Fairchild Devices to focus even more specifically on the types of devices that could be found to infringe directly *or* under the doctrine of equivalents. Even *after* filing this motion, AOS has been willing to engage in further meet and confer with Fairchild to resolve this issue without the Court’s intervention.<sup>1</sup> If the parties remain at an impasse, AOS respectfully requests that the Court adopt the definition of Accused Fairchild Devices proposed by AOS in this brief for purposes of compelling Fairchild to respond to discovery requests:

The term "Accused Fairchild Device" shall mean any device that includes a power MOSFET made, used, sold, offered for sale, or imported into the United States by or for Fairchild that comprises one or more of the following:

(a) any IC that includes a source contact area that is divided by at least one gate runner into two or more subcontact areas and wherein each of the subcontact areas is connected to a lead-frame by one or more lead-wires; and/or

(b) devices made by a method in which a source region of one conductivity type is formed within a body region of a different conductivity type and where a portion of body region near the source contains dopants of the first conductivity type; and/or

(c) MOSFET transistors having a body region formed through two

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<sup>1</sup> AOS plans to meet and confer with Fairchild this week regarding the definition of Accused Fairchild Devices. Should the parties resolve this issue, AOS will promptly inform the Court and take this matter off the Court’s calendar.

1 or more dopant implants.<sup>2</sup>

2 In contrast to Fairchild's proposed definition, this definition will allow discovery to  
3 proceed encompassing products that fall within either party's proposed claim constructions, rather  
4 than being limited to Fairchild's own unilateral construction.

## 5 **II. BACKGROUND**

6 As explained in AOS's opening brief, AOS attempted to resolve this dispute without  
7 motion practice by proposing a revised definition of Accused Fairchild Devices that was focused  
8 on the subset of Fairchild's power MOSFET-based devices that was most likely to infringe any  
9 one of AOS's three asserted patents. The three patents asserted by AOS are U.S. Patent Nos.  
10 5,767,567 ("the '567 patent"), 5,907,776 ("the '776 patent"), and 5,930,630 ("the '630 patent").  
11 The '567 patent relates to a packaging design for a power MOSFET in which lead wires are  
12 arranged over a source contact area. The '776 patent relates to a method of manufacturing a  
13 trench design power MOSFET. The '630 patent relates to a method of manufacturing power  
14 MOSFETs characterized by two body-dopant implants.

15 During a November 12, 2007, conference call, AOS agreed to two of Fairchild's  
16 suggested modifications to the definition, resulting in a proposed definition substantially as  
17 follows:

18 The term "Accused Fairchild Device" shall mean any power  
19 MOSFET-based device made, used, sold, offered for sale, or  
imported by Fairchild including:

20 (a) any IC that includes a source contact area that is connected  
21 to a lead-frame by more than one lead-wire; and/or

22 (b) any trench MOSFET; and/or

23 (c) MOSFET transistors having two dopant implants formed in  
a body region; and/or

24 (d) any other devices identified by AOS in the course of the  
25 litigation as infringing asserted an AOS Asserted Patent.

26 <sup>2</sup> This proposed definition, as with the others proposed by AOS, and the arguments in this brief  
27 are set forth only for purposes of discovery and for responding to Fairchild's arguments and  
28 proposed definition. To the extent that any of AOS's proposed definitions or arguments suggest a  
particular claim construction, they do not bind AOS to any particular claim construction positions  
or arguments. Claim construction will be addressed in the future through further briefing by the  
parties and a *Markman* hearing to be conducted by Judge White.

1 See Declaration of Harry Doscher dated November 13, 2007 (“Doscher Decl.”), Docket #72, ¶ 12.  
 2 Nonetheless, Fairchild’s counsel rejected this proposed definition. *Id.*

3 AOS invited Fairchild to propose a reasonable definition that was not overly restrictive  
 4 and that avoided potentially disputed claim terms. *Id.* In response, Fairchild proposed the  
 5 following definition on November 13, 2007 (“Fairchild’s 11/13 Proposed Definition”):

6 The term “Accused Fairchild Device” shall mean any device which  
 7 includes a power MOSFET made, used, offered for sale, or  
 8 imported into the United States by Fairchild that comprises one or  
 9 more of the following:

10 (a) any IC that includes a source contact area that is divided by  
 11 at least one gate runner into two or more subcontact areas, and  
 12 wherein each of the subcontact areas is connected to a lead-frame  
 13 by more than one-lead wire; and/or

14 (b) devices made by a method in which a body region is formed  
 15 adjacent to a trench, a source region is formed in the body region,  
 16 and an implant is made into the body region of the same  
 17 conductivity type as the source and which is other than an implant  
 18 used to form the source; and/or

19 (c) MOSFET transistors having a body region formed through  
 20 three dopant implants.

21 AOS rejected this definition proposed by Fairchild because it incorporated potentially disputed  
 22 claim language and unduly restricted AOS’s right to discovery.

### 23 **III. ARGUMENT**

#### 24 **A. Fairchild’s Proposed Definition Of “Accused Fairchild Devices” Is Unduly Restrictive And Excludes Potentially Infringing Devices**

25 Discovery should be sufficiently broad to encompass products that infringe the asserted  
 26 patents under the broadest construction of the claims that might be adopted by the Court; it should  
 27 not be limited to only those products that fall within the accused infringer’s narrow reading of the  
 28 claims. In its opposition brief, Fairchild petitions the Court to accept the definition of Accused  
 Fairchild Devices that it last proposed during meet and confer with AOS—i.e., Fairchild’s 11/13  
 Proposed Definition (set forth in full above). This definition, however, is unduly restrictive and  
 excludes potentially infringing devices because it reflects Fairchild’s unilateral interpretation of  
 the patents, which strategically imposes a number of limitations that do not appear on the face on  
 the claims. Restricting discovery based on one party’s construction of the claims is inappropriate

1 at this stage of the case. Claim construction briefing is yet to get underway, and the Court is still  
 2 months out from conducting a *Markman* hearing and construing the disputed claims terms. Each  
 3 subpart of Fairchild's 11/13 Proposed Definition embodies in one way or another Fairchild's  
 4 premature construction of the asserted claims and therefore attempts to elude discovery on  
 5 devices with potentially infringing features.

6 *First*, subpart (a) of Fairchild's 11/13 Proposed Definition includes "any IC that includes a  
 7 source contact area that is divided by at least one gate runner into two or more subcontact areas,  
 8 and wherein each of the subcontact areas is connected to a lead-frame by more than one-lead  
 9 wire." This subpart purports to relate to the '567 patent, which discloses a packaging design for a  
 10 power MOSFET in which lead wires are arranged over a source contact area, and specifically  
 11 asserted claim 7, which reads as follows:

12 A method to configure a source contact area on a power MOSFET  
 13 device by dividing said source contact areas with several gate  
 runners disposed thereon, said method including steps of:

14 (a) determining a total number of lead wires for connecting to a  
 15 lead frame from said source contact area on said MOSFET power  
 device; and

16 (b) configuring said gate runners for dividing said source contact  
 17 area into several sub-contact areas with a set of area proportional  
 ratios for disposing several of said lead wires in each of said sub-  
 18 contact areas according to said set of area proportional ratios.

19 Declaration of Igor Shoiket In Support Of Fairchild Semiconductor Corporation's Opposition  
 20 ("Shoiket Decl."), Docket #113, Ex. 3, Claim 7. In addition, the patent discloses that the number  
 21 of lead wires in a given subcontact area can vary. *See id.*, Figs. 2B, 2D, and 3.

22 The problem with subpart (a) is that, as Fairchild has crafted it, it excludes devices with  
 23 one lead wire in one or more of the subcontact areas. To this day, Fairchild continues to maintain  
 24 that AOS is not entitled to discovery on devices that do not have at least *two* lead wires in a given  
 25 subcontact area. *See* Def.'s Opp. at 7. This position is unsupportable because it stems entirely  
 26 from Fairchild's unilateral construction of the language of claim 7 as requiring more than one  
 27 lead wire to be disposed in each subcontact area. *See* Def.'s Opp. at 7 ("However, claim 7 of the  
 28 '567 patent . . . requires a contact area to be subdivided by gate runners into a plurality of (i.e., at

1 least two) subcontact areas, each of which is connected to a lead frame by more than one lead-  
 2 wire.”). This limitation is purely the result of Fairchild’s strategic reading of the claim, as the  
 3 Court could potentially find that the scope of claim 7 extends to devices with only one lead wire  
 4 in one or more of the subcontact areas. Since the parties have not even begun the exchanges  
 5 leading up to claim construction under the Patent Local Rules, Fairchild’s attempt to limit  
 6 discovery in this regard is inappropriate.<sup>3</sup> Therefore, the Court should reject subpart (a) of  
 7 Fairchild’s 11/13 Proposed Definition.

8 *Second*, subpart (b) of Fairchild’s 11/13 Proposed Definition includes “devices made by a  
 9 method in which a body region is formed adjacent to a trench, a source region is formed in the  
 10 body region, and an implant is made into the body region of the same conductivity type as the  
 11 source and which is other than an implant used to form the source.” This part of the definition  
 12 purports to relate to the ’776 patent, which discloses a method of manufacturing a trench design  
 13 power MOSFET, and specifically independent claims 1, 13, and 25, which are all asserted by  
 14 AOS. Each of these claims discloses a method of forming a semiconductor structure by at least  
 15 the following steps: (1) “forming at least one trench,” (2) “forming a body region of first  
 16 conductivity type,” (3) “forming a source region of a second conductivity type in said body  
 17 region,” and (4) “compensating a portion of said body region by implanting material of said  
 18 second conductivity type in said body region.” *See* Shoiket Decl., Ex. 4, Claims 1, 13, 25. The  
 19 compensated portion of the body region is further disclosed as being proximal to the source  
 20 region. *See id.*

21 One of the key limitations of the asserted independent claims of the ’776 patent is that the  
 22 compensated portion of the body region, which results from implantation of conductive material,  
 23 is said to be proximal or adjacent to the source region. While it is important to focus on devices  
 24 with such compensated body regions during discovery, subpart (b) is overly narrow and  
 25 restrictive because it only covers devices that are manufactured using a separate implantation step

26 <sup>3</sup> The first of the claim construction exchanges, under Patent L.R. 4-1, was scheduled for  
 27 December 13, and the parties have agreed to conduct the exchange on December 20. AOS is not  
 28 proposing, in the instant brief, any specific construction of asserted claim terms. Again, this  
 dispute is over a reasonable scope of discovery, not resolution of the ultimate questions of what  
 products fall within the claims.

1 to form the compensated portion: “an implant is made into the body region of the same  
 2 conductivity type as the source and *which is other than an implant used to form the source.*” The  
 3 limitation “which is other than an implant used to form the source” is not recited in the claims,  
 4 and appears to be a limitation that Fairchild seeks to unilaterally impose on the claims. Fairchild  
 5 is again trying to limit the scope of discovery to products that fall within Fairchild’s unilateral  
 6 construction of the claims, prematurely construing limitations into the claims that do not exist on  
 7 their face. Therefore, the Court should reject subpart (b) of Fairchild’s 11/13 Proposed  
 8 Definition.

9 *Third*, subpart (c) of Fairchild’s 11/13 Proposed Definition includes “MOSFET transistors  
 10 having a body region formed through three dopant implants.” This subpart purports to relate to  
 11 the ’630 patent, which discloses a method of manufacturing power MOSFETs characterized by  
 12 body-dopant implants, and specifically the method covered by at least independent claim 1, which  
 13 reads as follows:

- 14 1. A method for fabricating a MOSFET transistor on a substrate  
 15 comprising steps of:
- 16 a) forming an epi-layer of a first conductivity type as a drain region  
 17 in said substrate and then growing an initial oxide layer over said  
 18 epi-layer;
- 19 (b) applying an active mask for etching said active layer to define  
 20 an active area followed by depositing an overlaying polysilicon  
 21 layer thereon and applying a polysilicon mask for etching said  
 22 polysilicon layer to define a plurality of polysilicon gates;
- 23 (c) removing said polysilicon mask then carrying out a body  
 24 implant of a second conductivity type followed by performing a  
 25 body diffusion for forming a plurality of body regions;
- 26 (d) applying a source blocking mask for implanting a plurality of  
 27 source regions in said body regions with ions of said first  
 28 conductivity type followed by removing said source blocking mask  
 and a source diffusion process;
- (e) forming an overlying insulation layer covering said MOSFET  
 device followed by applying a contact mask to open a plurality of  
 contact openings there-through; and
- (f) performing a low energy body-dopant implant and high energy  
 body dopant implant to form a self-aligned shallow high  
 concentration body dopant region and a self-aligned deep high  
 concentration body dopant region.



1 Shoiket Decl., Ex. 5, Claim 1.

2 Contrary to a plain reading of the claim, Fairchild believes discovery relating to this claim  
3 should be limited to devices that have *three* implants in the body region in order to potentially  
4 infringe. *See also* Def.'s Opp. at 8 ("The '630 patent covers a device formed by three dopant  
5 implants into the body region, not two dopant implants."). The claims simply do not recite "three  
6 dopant implants" and therefore discovery should not be limited to products formed by three  
7 dopant implants.

8 **B. AOS's Definition of "Accused Fairchild Devices" Is Proper Because It**  
9 **Is Specifically Directed To The Claims Of The Asserted Patents**

10 As explained above, Fairchild's 11/13 Proposed Definition is improper because it reflects  
11 Fairchild's unilateral interpretation of the claims and effectively excludes potentially infringing  
12 devices. AOS, on the other hand, has always held to a definition of Accused Fairchild Devices  
13 that uses clear and plain language to identify specifically the types of Fairchild products with  
14 infringing features. Moreover, the definitions proposed by AOS have always been directly  
15 relevant to the asserted patents. Nevertheless, AOS proposes that the Court adopt the following  
16 definition, which is even narrower than AOS's previously proposed definitions:

17 The term "Accused Fairchild Device" shall mean any device that  
18 includes a power MOSFET made, used, sold, offered for sale, or  
imported into the United States by or for Fairchild that comprises  
one or more of the following:

19 (a) any IC that includes a source contact area that is divided by at  
20 least one gate runner into two or more subcontact areas and wherein  
each of the subcontact areas is connected to a lead-frame by one or  
21 more lead-wires; and/or

22 (b) devices made by a method in which a source region of one  
conductivity type is formed within a body region of a different  
conductivity type and where a portion of body region near the  
23 source contains dopants of the first conductivity type; and/or

24 (c) MOSFET transistors having a body region formed through two  
25 or more dopant implants.

26 Each subpart of this proposed definition ("AOS's 12/4 Proposed Definition") focuses on a  
27 specific aspect of each of the asserted patents and effectively excludes Fairchild products that do  
28 not have any relevance to the claims of the asserted patents.



1 With respect to the '567 patent, subpart (a) of AOS's 12/4 Proposed Definition includes  
2 "any [integrated circuit] that includes a source contact area that is divided by at least one gate  
3 runner into two or more subcontact areas and wherein each of the subcontact areas is connected to  
4 a lead-frame by one or more lead-wires." Unlike Fairchild's subpart (a), AOS's subpart (a)  
5 reflects what is reasonably covered by claim 7 of the '567 patent. AOS's definition, in fact,  
6 closely mirrors the key limitations of the claim—namely, "configuring said gate runners for  
7 dividing said source contact area into several sub-contact areas" and "disposing several of said  
8 lead wires [for connecting to the lead frame] in each of said sub-contact areas." Shoiket Decl.,  
9 Ex. 3, Claim 7.

10 With respect to the '776 patent, subpart (b) of AOS's 12/4 Proposed Definition includes  
11 "devices made by a method in which a source region of one conductivity type is formed within a  
12 body region of a different conductivity type and where a portion of body region near the source  
13 contains dopants of the first conductivity type." AOS's definition is relevant to the '776 patent  
14 because it focuses on the central limitations of the independent claims—namely, "compensating a  
15 portion of said body region by implanting material of said second conductivity type in said body  
16 region" that is proximal to the source region. *See* Shoiket Decl, Ex. 4, Claims 1, 13, and 25.  
17 Furthermore, AOS's subpart (b) properly includes devices that have a compensation portion of  
18 the body region, regardless of whether that compensated portion was formed by one or more  
19 implants. Further, this definition would not allow Fairchild to withhold discovery based on its  
20 theory that the body region must be compensated in a separate implantation step.

21 With respect to the '630 patent, subpart (c) of AOS's 12/4 Proposed Definition includes  
22 "MOSFET transistors having a body region formed through two or more dopant implants." By  
23 covering devices with such implants, subpart (c) follows the relevant aspects of the '630 patent.  
24 As explained above, one aspect of the method described in claim 1 is "performing a low energy  
25 body-dopant implant and high energy body dopant implant to form a self-aligned shallow high  
26 concentration body dopant region and a self-aligned deep high concentration body dopant  
27 region." Shoiket Decl., Ex. 5, Claim 1. Devices with these characteristic are properly within the  
28 purview of subpart (c).

Because each subpart of the AOS's 12/4 Proposed Definition targets devices with potentially infringing features, Fairchild cannot reasonably maintain its objection that this definition seeks an impermissible amount of information about irrelevant devices. The only case specifically relied on by Fairchild to support its argument that AOS's discovery requests are too broad is *Caliper Technologies, Corp. v. Molecular Devices Corp.*, 213 F.R.D. 555 (N.D. Cal. 2003). Fairchild's reliance on this case, however, is misplaced because the plaintiff there was seeking discovery on products that did not have any relevance to its claim of infringement. *See id.* at 558. Here, AOS is only seeking information on relevant products, with features that are specifically covered by the asserted patents, or with features that could potentially be found to infringe under the doctrine of equivalents. Therefore, AOS's 12/4 Proposed Definition should be adopted by the Court for the purposes of discovery.

#### IV. CONCLUSION

AOS respectfully asks the Court to compel Fairchild to provide complete responses to Interrogatory Nos. 1-5, 7 and 12-13 and Requests for Production Nos. 10, 12-17, 19-26, 28, 30-31, 36-37, 39-46, 48-49, 55 and 115 replacing the definition of Accused Fairchild Devices set forth in those discovery requests with AOS's 12/4 Proposed Definition, defended in this brief.

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